

WHAT IS CLAIMED IS:

1. An electrical isolation layer system, comprising:
a first conductive material comprising a plurality of copper strands;
a second conductive material comprising a roebel filler; and
5 a nomex spun laced felt having a dielectric strength of at least 300 volts per millimeter interposed at least partially between the copper strands and the roebel filler.
2. The isolation layer system of claim 1, wherein the felt has a dielectric strength of at least 500 volts per millimeter.
- 10 3. The isolation layer system of claim 1, wherein the plurality of copper strands include at least 30 roebelled copper strands.
4. The isolation layer system of claim 3, wherein the copper strands are sheathed by a porous insulating material.
5. The isolation layer system of claim 3, wherein the roebel filler includes a mica material.
- 15 6. The isolation layer system of claim 1, wherein the roebel filler includes a mica material.
7. The isolation layer system of claim 1, wherein the felt is arranged above the upper surface of the copper strands and below the lower surface of the roebel filler.
- 20 8. The isolation layer system of claim 1, wherein the felt is arranged below the upper surface of the copper strands and above the lower surface of the roebel filler.

9. The isolation layer system of claim 1, wherein the felt is arranged to sheath at least one copper strand.
10. The isolation layer system of claim 9, wherein the felt is arranged to sheath all the copper strands.
- 5 11. The isolation layer system of claim 1, wherein the isolation layer has an adhesive coated on at least one side of the isolation layer.
12. A strand assembly for use within a stator of a dynamoelectric machine of a power generation plant, comprising:
- 10 a plurality of roebelled conductive strands that extend along a generator length;
- an insulator sheathing each of the strands;
- a conductive filler at least partially surrounding the insulated strands; and
- an electrical isolation layer disposed at least partially between the insulated strands and the conductive filler material.
- 15 13. The strand assembly of claim 12, wherein the isolation layer has a dielectric strength of at least 300 volts per millimeter.
14. The strand assembly of claim 12, wherein the isolation layer comprises a nomex spun laced felt.
15. The strand assembly of claim 12, wherein the isolation layer has an adhesive covering at least one side of the isolation layer.
- 20 16. The strand assembly of claim 12, wherein the isolation layer can withstand an operating temperature of at least 130° C.
17. A method of forming a strand assembly that extends along an axial length,

comprising:

sheathing a plurality of conductive strands with an insulating material;

roebelling the insulated strands;

arranging an electrical isolation layer at least partially over the insulated

5 strands; and

arranging a conductive filler at least partially over the insulated strands

whereby the isolation layer electrically isolates the strands from the filler.

18. The method of claim 17, wherein the isolation layer is arranged above the
upper surface of the insulated strands and below the lower surface of the
insulated strands.

19. The method of claim 17, wherein the isolation layer sheathes the insulated
strands.

20. The method of claim 17, wherein the insulator used to insulate the strands
has a porous open weave.